

E UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Confirmation No.: 2201

GARDELLA et al.

1654 Art Unit:

For:

Appl. No.: 10/549,592 (U.S. Nat'l Phase of

Examiner: To Be Assigned

PCT/US2003/008261)

Attv. Docket: 0609.5150000/TJS/PAC

§ 371 Date: January 12, 2007

Conformationally Constrained Parathyroid Hormones With α-

Helix Stabilizers

Information Disclosure Statement under 37 C.F.R. § 1.97(b)

Mail Stop Amendment

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir

Listed on accompanying IDS Forms, PTO/SB/08A and PTO/SB/08B are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Copies of documents FP1 and NPL1-NPL36 are submitted. However, in accordance with 37 C.F.R. § 1.98(a)(2), copies of U.S. patents, documents US1 to US5, cited on the attached IDS Form, PTO/SB/08A, are not submitted.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached IDS Forms based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

This Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits. No statement or fee is required.

It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Forms, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Paul A. Calso

Attorney for Applicants Registration No. 57,913

Date: 4/20/07

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			APPLICANT	First Named Inventor	GARDELLA, Thomas J.
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Sheet	1	of	1	Attorney Docket Number	0609.5150000/TJS/PAC

			U.S. PATENT DO	CUMENTS	
Examiner Initials	Citc No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages
- T- T- /		Number-Kind Code <sup>2 (If Known)</sup>			or Relevant Figures Appear
/R.T./	US1	4,675,189	06/23/1987	Kent et al.	
	US2	4,698,328	10/06/1987	Neer et al.	
	US3	4,761,406	08/02/1988	Flora et al.	
N/	US4	6,030,709	02/29/2000	Adermann et al.	
V	US5	2002/0110871	08/15/2002	Zahradnik et al.	
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Sheet	1	4 Attorney Docket Number 0609.5150000	J/TJS/PAC
		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No.	nclude name of the author (in CAPITAL LETTERS), title of the article (when of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, p issue number(s), publisher, city and/or country where publishe	page(s), volume- T
/R.T./	NPL1	Barden, J.A. and Kemp, B.E., "NMR Solution Structure of Huma Iormone(1-34)," <i>Biochemistry</i> 32:7126-7132, American Chemi 1993)	
	ŅPL2	Behar, V., et al., "Photoaffinity Cross-linking Identifies Differen Interactions of an Agonist and an Antagonist with the Parathyroi formone/Parathyroid Hormone-related Protein Receptor," J. Bia 775:9-17, American Society for Biochemistry and Molecular Bia 2000)	d ol. Chem.
	NPL3	Bergwitz, C., et al., "Full Activation of Chimeric Receptors by E- tetween Parathyroid Hormone and Calcitonin," J. Biol. Chem. 2 (6472, The American Society for Biochemistry and Molecular B 1996)	71:26469-
	NPL4	Berridge, M.J., et al., "Changes in the levels of inositol phosphat gonist-dependent hydrolysis of membrane phosphoinositides," 12:473-482, The Biochemical Society (1983)	
	NPL5	Bowen, W.P. and Jerman, J.C., "Nonlinear regression using spre Frends Pharmacol Sci 16:413-417, Elsevier, Science Ltd. (1995)	
	NPL6	Carter, P.H., et al., "Studies of the N-Terminal Region of a Parat formone-Related Peptide(1-36) Analog: Receptor Subtype-Sele Agonists, Antagonists, and Photochemical Cross-Linking Agents 40:4972-4981, The Endocrine Society (1999)	ctive
	NPL7	Chen, Z., et al., "Solution Structure of the Osteogenic 1-31 Fragr Human Parathyroid Hormone," Biochemistry 39:12766-12777, A Chemical Society (2000)	
	NPL8	Chorev, M., et al., "Modifications of Position 12 in Parathyroid I Parathyroid Hormone Related Protein: Toward the Design of Hig Antagonists," Biochemistry 29:1580-1586, American Chemical	ghly Potent
	NPL9	Dempster, D.W., et al., "Anabolic Actions of Parathyroid Hormondocrine Rev. 14:690-709, The Endocrine Society (1993)	
Ψ-	NPL10	Dempster, D.W., et al., "Erratum: Anabolic Actions of Parathyro on Bone," Endocrine Rev. 15:261, The Endocrine Society (1994)	

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				Examiner Name	To Be Assigned
Sheet	2	of	4	Attorney Docket Number	0609.5150000/TJS/PAC

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Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published	т
/R.T./	NPL11	Fairwell, T., et al., "Total Solid-Phase Synthesis, Purification, and Characterization of Human Parathyroid Hormone-(1-84)," Biochemistry 22:2691-2697, American Chemical Society (1983)	
	NPL12	Gronwald, W., et al., "Structure of Recombinant Human Parathyroid Hormone in Solution Using Multidimensional NMR Spectroscopy," Chem. Hoppe-Seyler 377:175-186, Walter de Gruyter & Co. (1996)	
	NPL13	Goud, N.A., et al., "Solid-Phase Synthesis and Biologic Activity of Human Parathyroid Hormone(1-84)," J. Bone Min. Res. 6:781-789, Mary Ann Liebert, Inc. (1991)	
	NPL14	Hoare, S.R.J., et al., "Evaluating the Signal Transduction Mechanism of the Parathyroid Hormone 1 Receptor," J. Biol. Chem. 276:7741-7753, American Society for Biochemistry and Molecular Biology, Inc. (2001)	
	NPL15	Jüppner, H., et al., "A G Protein-Linked Receptor for Parathyroid Hormone and Parathyroid Hormone-Related Peptide," Science 254:1024-1026, American Society for the Advancement of Science (1991)	
	NPL16	Kaul, R and Balram, P., "Stereochemical Control of Peptide Folding," Bioorg. Med. Chem. 7:105-117, Elsevier Science Ltd. (1999)	
	NPL17	Kronenberg, H.M., et al., "Parathyroid Hormone: Biosynthesis, Secretion, Chemistry, and Action" in: Handbook of Experimental Pharmacology, Mundy, G.R., and Martin, T.J., eds., Springer-Verlag, Berlin, Germany, pp.507-567 (1993)	
	NPL18	Luck, M.D., et al., "The (1-14) Fragment of Parathyroid Hormone (PTH) Activates Intact and Amino-Terminally Truncated PTH-1 Receptors," Mol. Endocrinol. 13:670-680, The Endocrine Society (1999)	
$\forall$	NPL19	Marx, U.C., et al., "Structure of Human Parathyroid Hormone 1-37 in Solution," J. Biol. Chem. 270:15194-15202, The American Society for Biochemistry and Molecular Biology, Inc. (1995)	

Examiner		Date	
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		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where publisher.	T <sup>2</sup>
/R.T./	NPL20	Marx, U.C., et al., "Structure-Activity Relation of NH <sub>2</sub> -terminal Human Parathyroid Hormone Fragments," <i>J. Biol. Chem</i> 273:4308-4316, American Society for Biochemistry and Molecular Biology, Inc. (1998)	
	NPL21	Marx, U.C., et al., "Solution Structures of Human Parathyroid Hormone Fragments hPTH(1-34) and hPTH (1-39) and Bovine Parathyroid Hormone Fragment bPTH(1-37)," Biochem. Biophys. Res. Commun. 267:213-220, Academic Press (2000)	
	NPL22	Neer, R.M., et al., "Effect of Parathyroid Hormone (1-34) On Fractures and Bone Mineral Density in Postmenopausal Women with Osteoporosis," N. Eng. J. Med. 344:1434-1441, Massachusetts Medical Society (2001)	
	NPL23	Pellegrini, M., et al., "Binding Domain of Human Parathyroid Hormone Receptor: From Conformation to Function," Biochemistry 37:12737-12743, American Chemical Society (1998)	
	NPL24	Robinson J.R. ed., "Methods to Achieve Controlled Drug Delivery," in: Sustained and Controlled Release Drug Delivery Systems, Marcel Dekker, New York, NY, pp 557-593 (1978)	
	NPL25	Shen, V., et al., "Effects of Combined and Separate Intermittent Administration of Low-Dose Human Parathyroid Hormone Fragment (1-34) and 17β-Estradiol on Bone Histomorphometry in Ovariectomized Rats with Established Osteopenia," Calcif. Tissue Intl. 50:214-220, Springer-Verlag Inc. (1992)	
	NPL26	Shimizu, M., et al., "Autoactivation of Type-1 Parathyroid Hormone Receptors Containing a Tethered Ligand," J. Biol. Chem. 275:19456-19460, The American Society for Biochemistry and Molecular Biology, Inc. (2000)	
	NPL27	Shimizu, M., et al., "Minimization of Parathyroid Hormone," J. Biol. Chem. 275:21836-21843, The American Society for Biochemistry and Molecular Biology, Inc. (2000)	
$\forall$	NPL28	Shimizu, M., et al., "Enhanced Activity in Parathyroid Hormone-(1-14) and -(1- 11): Novel Peptides for Probing Ligand-Receptor Interactions," Endocrinol. 142:3063-3074, Endocrine Society (2001)	

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/R.T./	NPL29	Shimizu, N., et al., "Parathyroid Hormone (PTH)-(1-14) and -(1-11) Analogs Conformationally Constrained by α-Aminosobutyric Acid Mediate Full Agonist Responses via the Juxtamembrane Region of the PTH-1 Receptor," J. Biol. Chem. 276:49003-49012, The American Society for Biochemistry and Molecular Biology, Inc. (2001)	
	NPL30	Slovik, D.M., et al., "Restoration of Spinal Bone in Osteoporotic Men by Textment with Human Parathyroid Hormone (1-34) and 1,25-Dihydroxyvitamin D.," J. Bone Min. Res. 1:377-381, Mary Ann Liebert, Inc. (1986)	
	NPL31	Takasu, H., et al., "Amino Terminal Modifications of Human Parathyroid Hormone (PTH) Selectively Alter Phospholipase C Signaling via the Type I PTH Receptor: Implications for Design for Signal-Specific PTH Ligands," Biochemistry 38:13453-13460, American Chemical Society (1999)	
	NPL32	Takasu, H., et al., "Dual Signaling and Ligand Selectivity of the Human PTH/PTHrP Receptor," J. Bone Min. Res. 14:11-20, Blackwell Science, Inc. (1999)	
	NPL33	Tregear, G.W., et al., "Bovine Parathyroid Hormone: Minimum Chain Length of Synthetic Peptide Required for Biological Activity," Endocrinol. 93:1349-1353, The Endocrine Society (1973)	
	NPL34	Whitefield, J.F., et al., "Restoration of Severely Depleted Femoral Trabecular Bone in Ovariectomized Rats by Parathyroid Hormone-(1-34)," Calcif. Tissue Int. 56:227-231, Springer-Verlag Inc. (1995)	
	NPL35	Whitfield, J.F., et al., "Comparison of the Ability of Recombinant Human Parathyroid Hormone, rhPTH-(1-84), and hPTH-(1-31)NH <sub>2</sub> Stimulate Femoral Trabecular Bone Growth in Ovariectomized Rats," Calcif. Tissue Int. 60:26-29, Springer-Verlag Inc. (1997)	
$\bigvee$	NPL36	Wold, F., "Posttranslational Protein Modifications: Perspectives and Prospects," in Posttranslational Covalent Modifications of Proteins, B.C. Johnson, eds., Academic Press, Inc., New York, pp. 1-12 (1983)	

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